

What is claimed:

1. A building insulation comprising:

a cellulosic facing, comprising at least one antifungal/antimicrobial agent; and

5 an insulation layer adhered to said cellulosic facing by an adhesive, said insulation layer comprising randomly oriented inorganic fibers bonded together with a binder.

2. The building insulation of claim 1 wherein said antifungal/antimicrobial agent is nontoxic and noncarcinogenic when said facing is contacted by humans.

3. The building insulation of claim 1 wherein said antifungal/antimicrobial agent is  
10 heat resistant to a temperature of at least about 250°F.

4. The building insulation of claim 1 wherein said antifungal/antimicrobial agent is heat resistant when contacted with molten bituminous adhesive; and

said insulation layer is bonded to said cellulosic facing with a molten bituminous adhesive, which when cooled, adheres to said cellulosic facing to said insulation layer.

15 5. The building insulation of claim 1, wherein the cellulosic facing is Kraft paper.

6. The building insulation of claim 1, wherein said cellulosic facing has a basis weight of about 20-60 lbs. per 3000 ft<sup>2</sup>.

7. The building insulation of claim , wherein said antifungal/antimicrobial agent comprises: chlorine, organo-mecurials, chlorinated phenols, organo-bromides, organo-sulphur  
20 compounds, copper sulfate, 2, 4, 4'- trichloro-2' hydroxydiphenol (Microban®), 5-chloro-2-(2, 4-dichlorophenoxy) phenol; diiodomethyl-p-tolylsulfone; 2-bromo-2 nitropropane-1, 3-diol (BNPD); sodium 2-pyridinethiol-1-oxide (PEO); 2-(thiocyano-methyl thio) benzothiazole (TCMTB), 3-iodo-2 propynyl-butyl carbamate; phenyl-(2-cyano-2 chlorovinyl) sulfone; N, N-dimethyl-N'-phenyl-(N'-fluorodichloromethylthio) sulfamide; 2, 2-dibromo-2-

nitripropionamide; 3,4-dichloro-1, 2-dithiol-3-one; N-4-dihydroxy-alpha-oxobenzene-ethanimidoyl chloride; methylene-bis-thiocyanate; dodecylguanidine hydrochloride; sodium 2-pyridinethiol-1-oxide; trihaloalkyl sulfone; bis (trichloro methyl) sulfone (BTCMS), chlorhexidine; polyhexamethylene biguanide (PHMB), glutaraldehyde, a mixture of 5-chloro-2-methyl-4-isothiazolin-3-one + 2-methyl-4-isothiazolin-3-one and derivations, homologues and combinations thereof.

8. The building insulation of claim 1, wherein said insulation has a R-value of between 5 and 100.

9. The building insulation of claim 1, wherein said insulation passes ASTM C1338 when exposed to a microorganism.

10. The building insulation of claim 1, wherein said antifungal/antimicrobial agent presents no significant toxic residue on said cellulosic facing.

11. The building insulation of claim 1, wherein said antifungal/antimicrobial agent comprises at least two synergistic biocides.

12. The building insulation of claim 4, wherein said antifungal/antimicrobial agent is present in said cellulosic facing in a level of about 3-180 ppm.

13. The building insulation of claim 4 wherein said antifungal/antimicrobial agent is added to the furnish pulp used to make said cellulosic facing.

14. A building insulation comprising a cellulosic facing, comprising at least one antifungal/antimicrobial agent added to the furnish pulp used to make said cellulosic facing in a quantity of less than 200 ppm based on the dry weight of the cellulosic facing, but high enough to render said facing mold resistant in accordance with ASTM C1338, ASTM D-2020, TAPPI Test T487, or a combination thereof.

15. The building insulation of claim 14, wherein said cellulosic facing is Kraft paper having a basis weight of about 20-60 lbs. per 3000 ft.<sup>2</sup>.

16. The building insulation of claim 15, wherein said Kraft paper has a bituminous vapor barrier coating thereon.

17. The building insulation of claim 16, wherein said antifungal/antimicrobial agent is resistant to a temperature of at least about 250°F..

5 18. The building insulation of claim 14, wherein said antifungal/antimicrobial agent is a slimicide used in a papermaking process.

19. The building insulation of claim 18, wherein said antifungal/antimicrobial agent comprises a combination of methylene-bis-thiocyanate and dodecylghanidine hydrochloride.

10 20. A process for preparing an antifungal/antimicrobial faced insulation product, comprising:

(a) preparing an insulation layer comprising randomly oriented inorganic fibers bonded by a resinous binder, said insulation layer having first and second major surfaces thereon; and

15 (b) adhering a cellulosic facing layer to at least said first of said major surfaces, said cellulosic facing layer containing an amount of an antifungal or antimicrobial agent, which is sufficient to act as an antifungal or antimicrobial agent.

21. The process of claim 20 wherein said insulation product is a faced mineral fiber batt.

20 22. The process of claim 20 wherein said antifungal or antimicrobial agent includes a biocide added to said cellulosic facing layer.

23. The process of claim 22 wherein said biocide is applied to said cellulosic facing layer during or after the making of said cellulosic facing layer.

24. The process of claim 23 further comprising forming a paper slurry precursor of said cellulosic facing layer, whereby said biocide is added to said paper slurry precursor.

25. The process of claim 20 wherein said antimicrobial agent is temperature resistant to at least about 250°F.

26. The process of claim 20 wherein said adhering step (b) comprises applying a hot and tacky bituminous layer on one side of said cellulosic facing layer and contacting said  
5 bituminous layer to said insulation layer while said bituminous layer is still hot and tacky.

27. The process of claim 20 wherein said antifungal or antimicrobial agent is present in said cellulosic facing layer in a level of greater than about 3 ppm.

28. The process of claim 20 wherein said antifungal or antimicrobial agent is present in said cellulosic facing layer in a level of about 3-180 ppm.

10 29. The process of claim 20 wherein said antimicrobial agent is present in said cellulosic facing layer in sufficient quantities to exhibit no observable fungal growth when tested in accordance with test method ASTM C-1338.

30. A method of controlling the growth of fungi or mildew on a cellulosic facing of an insulation product, comprising selecting a type and quantity of biocide used in connection  
15 with slime reduction in a pulp and paper system used to make a fiber slurry precursor of said cellulosic facing, so as to achieve both slime reduction in said pulp and paper system and level of said biocide in said cellulosic facing which is sufficient to achieve no observable fungi or mildew growth when tested in accordance with ASTM C-1338.

31. The method of claim 30 wherein said biocide is methylene-bisthiocyanate,  
20 dodecylguanidine hydrochloride, or a combination thereof.

32. The method of claim 30 wherein said level of biocide is at least 3 ppm, based on the dry weight of the cellulosic facing.

33. The method of claim 30, wherein said level of biocide is about 3-180 ppm of the dry weight of the cellulosic facing.

34. The method of claim 30, wherein said biocide is added to at least one of a papermaking stock tank, pulp refiner, stock chest, flow box, furnish, wet lap, hydropulper, dump chest, size press, water box, or a combination thereof, used to make said cellulosic facing.

35. The method of claim 30, wherein said biocide is added to at least one of pulp, broke, polymer, de-foamer, alum, emulsions, adhesives, paper mill coatings, pigment slurries, paper products, or a combination thereof, used to make said cellulosic facing.

36. The method of claim 30, wherein said biocide level is selected to be significantly below 200 ppm of the dry weight of the cellulosic facing.

37. The method of claim 30, wherein said amount of biocide is also resistant to the application of a hot bituminous coating to said cellulosic facing.

38. A building insulation batt comprising:

a cellulosic facing comprising at least one antifungal/antimicrobial agent which is nontoxic and noncarcinogenic when contacting the skin of a human being; and

an insulation layer adhered to said cellulosic facing by an adhesive, said insulation layer comprising randomly oriented inorganic fibers bonded together with a binder.

39. A building insulation comprising:

a cellulosic facing comprising at least one antifungal/antimicrobial agent which is heat resistant to a temperature of at least about 250°F; and

an insulation layer bonded to said cellulosic facing with an adhesive, said insulation layer comprising randomly oriented inorganic fibers bonded together with a binder.

40. A building insulation comprising:

a cellulosic facing comprising at least one antifungal/antimicrobial agent, which is heat resistant when contacted with molten bituminous adhesive; and

an insulation layer bonded to said cellulosic facing with a molten bituminous adhesive, which when cooled, adheres to said cellulosic facing to said insulation layer, said insulation layer comprising randomly oriented inorganic fibers bonded together with a binder.

- 5 41. A facing for an insulation product, comprising a Kraft paper having adhered to a first surface thereof a bituminous adhesive, said Kraft paper containing a biocide which is effective in achieving no observable fungi or mildew growth when tested in accordance with the ASTM C-1338 test method.